

**REMARKS**

The Advisory Action dated October 25, 2006 and the final Office Action dated June 14, 2006 have been reviewed and the comments of the U.S. Patent Office have been considered. Claim 51 stands rejected, and claims 2-26, 36-47, 52-54 and 58-134 stand withdrawn from consideration. Applicants thank the Examiner for the allowance of claims 27-25, 48-50, 55 – 57, 136 and 138-153. Accordingly, claims 2-134, 136, 138-153 are currently pending. In view of the following arguments, applicants assert that the application is in condition for allowance. As such, entry of this response is respectfully requested as a submission accompanying a Request for Continued Examination.

Claim 51 stands rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Hodgman, Jr., U.S. Patent 2,155,990 (“Hodgman”). Claim 51 further stands rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dolan, U.S. Patent Application Publication 2002/0050531 (“Dolan”). The Examiner maintains the rejection of claim 51 for reasons as stated in the Final Rejection of June 14, 2006. Specifically, the Examiner continues to assert that claim 51 is not patentably distinct because (i) the sprinklers of Hodgman and Dolan inherently have a rated K-factor, (ii) the flow rate of a sprinkler can be determined by  $Q = K(p)^{1/2}$ , and (iii) all the structural limitations of the claims are purportedly taught by the prior art. *See* Final Office Action, Detailed Action at 9-10. Applicants again respectfully disagree with the Examiner’s position, and kindly remind the Examiner that in order to establish inherency:

[T]he extrinsic evidence “must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be

established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.”

MPEP § 2112 (citations omitted). Despite the Examiner’s recitation of the known formula of  $Q = K(p)^{1/2}$  and the assertion that the sprinklers of Hodgman and Dolan inherently have rated K-factors, applicants maintain that the Examiner has not provided the adequate basis in fact or technical reasoning to reasonably support a determination, necessarily stemming from the teachings of Hodgman or Dolan, that the sprinklers of Hodgman or Dolan inherently show or describe a flow of fluid from the outlet of the sprinkler that is “at least 95 percent of the rated K-factor multiplied by the square root of the pressure of the flow of fluid fed into the inlet of the structure in pounds per square inch gauge.” See MPEP § 2112. Moreover, the Examiner has not provide such basis or technical reasoning in view of applicants’ discovery, as stated in the application as originally filed at page 5, paragraph number [0010], that known sprinklers fail to provide an actual flow rate from the outlet at an expected tolerance level, as based upon the discharge coefficient for which the known sprinklers purport to provide at various pressures provided to the inlet prior to actuation of the known sprinkler.

To reiterate the arguments already of record, applicants submit that the Examiner has relied upon generalized depictions, descriptions and silence regarding fluid flow and sprinkler operations to conclude that Hodgman and Dolan each inherently have a K-factor rating defining an expected flow-rate. The Examiner does not point to any teaching in either of the cited references that would support an inherent showing “that the flow of fluid from the outlet of the structure is at least 95 percent of the rated K-factor multiplied by the square root of the pressure of the flow of fluid fed into the inlet of the structure in pounds per square inch gauge.”

The Examiner relies on Figure 3 and page 2, lines 20-39 of Hodgman showing and describing water flowing “unobstructed” through the inlet port and out the outlet to the deflecting structure to conclude that the sprinkler device of Hodgman would inherently have a K-factor rating defining an expected flow rate. *See* Final Office Action, Detailed Action at 4. However, nothing cited by the Examiner supports a determination, inherent or otherwise, that the flow of fluid from the outlet of the structure in Hodgman is at least 95 percent of the rated K-factor multiplied by the square root of the pressure of the flow of fluid fed into the inlet of the structure in pounds per square inch gauge. The Examiner’s only support for this conclusion is applicants’ own disclosure.

With regard to Dolan, the Examiner relies on the silence in Dolan to draw the conclusion of inherent disclosure. The Examiner concludes that “there is nothing in the disclosure of Dolan that would indicate that the water flow rate through the device would be at an unacceptable level.” *See* Final Office Action, Detailed Action at 6. After formulating this conclusion, the Examiner utilizes the teachings of applicants’ own disclosure, in the face of Dolan’s silence to hypothesize that the device of Dolan would inherently have a K-factor rating defining an expected flow rate, and because “one would reasonably expect the device of Dolan to provide an acceptable flow rate, one can reasonably conclude that the flow of fluid from the outlet of Dolan is at least 95 percent of the inherent K-factor rating.” *Id.* However, nothing cited by the Examiner supports a determination, inherent or otherwise, that the flow of fluid from the outlet of the structure in Dolan is at least 95 percent of the rated K-factor multiplied by the square root of the pressure of the flow of fluid fed into the inlet of the structure in pounds per square inch gauge.

Because Hodgman and Dolan fail to expressly or inherently, show or describe a sprinkler in which “the flow of fluid from the outlet of the structure is at least 95 percent of the rated K-factor multiplied by the square root of the pressure of the flow of fluid fed into the inlet of the structure in pounds per square inch gauge,” Hodgman and Dolan fail to show each and every feature of the claimed inventions, and therefore applicants continue to submit that claim 51 is patentable over the cited art.

With regard to independent claim 51 and its recitation of “means for repositioning the central axis of the face skewed to the longitudinal axis within the passageway. . . so that a flow of fluid . . . is at least 95 percent of the rated K-factor multiplied by the square root of the pressure,” applicants continue to maintain that the Examiner has not satisfied the requisite burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in applicants’ specification which has been identified as corresponding to the claimed means or step plus function.

Applicants again kindly remind the Examiner that application of a prior art reference in the examination of a means-plus-function claim limitation requires that the applied prior art element perform the identical function specified in the claim. *See* MPEP § 2183. If the prior art reference teaches identity of function, (which the Examiner purports Hodgman and Dolan to do with regard to claimed function of claim 51) then the Examiner has the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function. *Id.* The Examiner has not satisfied the requisite burden of proof for showing Hodgman or Dolan to have structure that is the same or

equivalent to the structure, material, or acts described in applicants' specification which has been identified as corresponding to the claimed means plus function of claim 51. For example, the Examiner has not established a *prima facie* case of equivalence between the structure shown and described in applicants' specification in the elected species of Group C and the structure of Hodgman or Dolan. Thus, claim 51 is patentable over the prior art for at least this reason.

In this instance, structure corresponding to the claimed means for the elected species is described at page 30, paragraph number [00110] in the application as originally filed.

[A]s shown in Figures 3A-3F, an arrangement of the locator is provided for repositioning of the face 37 so that the central axis X-X of the face 37 is skewed to the longitudinal axis A-A in an actuated condition of the dry sprinkler 10 and the expected flow rate is provided from the dry sprinkler. In particular, it is noted that the closure assembly 30 is different from the previous embodiments in that the closure assembly is no longer pinned to a yoke. Referring to Figures 3A and 3B, the contact member 40 is a projection 410 having a free end 410a that extends generally orthogonal to the longitudinal axis A-A. The projection 410 can be coupled to the inner inlet fitting surface 23b. Further, the projection 410 can be a separate member coupled to a sleeve 42 press-fitted within the inlet 23. The projection 410 can be coupled to the sleeve 42 through a projection opening 43. The sleeve 42 can be press-fitted in the surface 23b to form the contact assembly 40. In an alternate configuration, the projection 410 is a unitary member 410b of the sleeve 42 that can be formed by cutting a portion of the wall surface of the sleeve 42 and bending that portion towards the longitudinal axis A-A to form a free end 410c (FIG. 3E).

See Application As-Filed at 30 para. [00110], FIGS. 3A-3F. Factors that support a *prima facie* case of equivalence between the prior art and the corresponding structure for performing the claimed function include a showing that (i) the prior art element performs the identical function specified in the claim in substantially the same way, and produces substantially the same results as the corresponding element disclosed in the specification; (ii) a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the prior art for the corresponding element disclosed in the specification; (iii) there are insubstantial differences

between the prior art element and the corresponding element disclosed in the specification; or (iv) the prior art element is a structural equivalent to the corresponding element disclosed in the specification, i.e. the prior art element performs the function specified in the claim in substantially the same manner as the function is performed by the corresponding element described in the specification. *See* MPEP § 2183. The Examiner has failed to establish any of the above. In particular, the structures cited by the Examiner in either of Hodgman or Dolan are not the structural equivalents of the corresponding structure described in applicants' specification for performing the claimed function.

With regard to Hodgman, the Examiner, citing Figures 1 and 3, contends that Hodgman shows a member 16 that contacts a purported disc annulus (21) and closure body (15) so that the face of the disc annulus (21) is translated to one side of the longitudinal axis. *See* Final Office Action, Detailed Action at 3. According to Hodgman, the closure body or valve 15 and the disc annulus or gasket 21 secured thereto, are provided at one side with a lug 16 pivoted at 17 to lugs depending from the disk 12 so that the valve is thereby flexibly connected to the casing at one side thereof. *See* Hodgman at 2, col. 1, lines 14-18; 41-43. Applicants submit that the pivot connection 16 of Hodgman used to translate the closure body or valve 15 and the purported disc annulus 21 to one side of the longitudinal axis performs its function in a substantially different manner than the corresponding projection and free end structure of the elected species in applicants' specification as reproduced above. Moreover, the structure of the elected species is distinguished from pin type connection in applicants' specification, "it is noted that the closure assembly 30 is different from the previous embodiments in that the closure assembly is no longer pinned to a yoke." *See* Application As-Filed, at 30 para. [00110].

Because the structure of Hodgman operates in a substantially different way than the corresponding structure in applicants' specification for performing the claimed function, a *prima facie* case of equivalence cannot stand. MPEP § 2183.

With regard to Dolan, the Examiner, citing Figure 2, contends that Dolan shows a metallic disc annulus 23b having an outer perimeter contacting a portion of the sprinkler structure so that disc annulus is skewed from the longitudinal axis. According to Dolan, a valve seal (23) is in constant contact with the strut (25). The strut 25 has a distal end (25b) which movably supports the valve seal (23) into the closed position by applying a sealing force. *See* Dolan at 4, paras [0048] & [0050], FIG. 2. Further according to Dolan, the rotational and axial movement of the strut 25 releases the sealing force from the valve seal 23. *See id.* at para [0053]. An elongated pin member 26 is adapted for movement between a locking position preventing the rotational and axial movement of the strut 25 and an unlocking position permitting the axial and rotational movement of the strut 25. *See id.* Applicants submit that the pin and strut arrangement (26, 25) of Dolan used to translate the purported closure body or valve seal 23 and the purported disc annulus 23b to one side of the longitudinal axis performs its function in a substantially different manner than the corresponding projection and free end structure of the elected species in applicants' specification as reproduced above. Because the structure of Hodgman operates in a substantially different way than the corresponding structure in applicants' specification for performing the claimed function, a *prima facie* case of equivalence cannot stand. MPEP § 2183.

The Examiner, in the alternative, asserts that claim 51 is rendered obvious under Section 103(a) and 102(e) respectively in view of Hodgman or Dolan. Specifically, the

Examiner alleges that it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust or modify the disclosed parameters of the device of either Hodgman or Dolan in order to ensure that the flow of fluid from the outlet is provided at an acceptable and optimum level. *See* Detailed Action at 4 & 6. However, the Examiner does not point to any teaching, suggestion, motivation or reason to modify either device of Hodgman or Dolan to reach the claimed flow of fluid. The only motivation to modify the cited references is applicants' own disclosure. Because there is no teaching or suggestion in either Hodgman or Dolan to modify their respective sprinklers to reach the claimed flow of fluid, Hodgman and Dolan fail to teach the claimed inventions as a whole. Accordingly, claim 51 is patentable over the cited references.

Applicants continue to disagree with the Examiner; however in the interest of advancing prosecution, applicants have further amended claim 51 to particularly point out and distinctly claim the subject matter which the applicants regard as their invention. Accordingly, applicants submit that neither Hodgman nor Dolan expressly or inherently show or describe, or provide a reason to otherwise teach or suggest, a dry sprinkler as recited in claim 51 that includes, *inter alia*, "first means for translating the metallic disc annulus along the longitudinal axis between a first position and a second position; and second means for repositioning the central axis of the face skewed to the longitudinal axis within the passageway, the second means being located between the first and the second position . . . so that a flow of fluid . . . is at least 95 percent of the rated K-factor multiplied by the square root of the pressure." *See* Application As-Filed at 30 para. [00110], FIGS. 3A-3F. In view of the above amendment and remarks, applicants submit that the instant application is in condition for allowance.



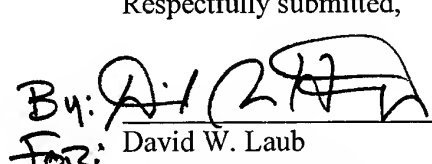
**CONCLUSION**

In view of the foregoing amendments and remarks, applicants respectfully request reconsideration of this application and the prompt allowance of at least claims 27-35, 48-51, 55-57, 136, and 138-153. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the undersigned to expedite prosecution of the application.

The Commissioner is hereby authorized by this paper to charge any fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account 50-3081. **This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).**

Respectfully submitted,

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